

Implementation
of the S/A
Plan
1985

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TECH SECTION

GWM
information
not analysis,
only
installation

Trip Report Syntex Compliance
Monitoring Sampling Report

Syntex Facility
Verona, Missouri

TDD # R07-8408-23

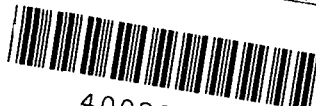
January 24, 1986

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Prepared by: Region VII REM/FIT

Task Leader: Nancy Blackman

Volume 1 of 3



40028991
SUPERFUND RECORDS

25

<u>SYNTEX SAMPLE NUMBER</u>	<u>EPA SAMPLE NUMBER</u>	<u>DESCRIPTION</u>
233.4401	AK651031	Lagoon Area, grey clay and rock
234.3301	AK651032	Lagoon Area, brown clay and silt
234.3401	AK651033	Lagoon Area, brown clay and silt, trace black material

A complete listing of all the samples collected from the Lagoon Area with the associated sample numbers, analysis performed, and descriptions is listed in Appendix A20.

The samplers were dressed in level-C protective clothing. The specific protective gear is the same as those described for sampling in the Irrigation Area.

The only problem encountered during the Lagoon sampling involved the area transversed by the support vehicles. The weather was moderately wet during the sampling of the Lagoon Area making the soil extremely muddy. The vehicles caused the vegetative cover to be removed. To reduce the possibility of a future dust problem the area was seeded and straw placed over the soil until the new grass came in.

2.8 TRENCH AREA

Sampling of the Trench Area was conducted from June 10 to August 6, 1985. ~~The Trench Area consists of a series of five unlined trenches that were used to dispose of waste material from the Syntex plant. The trenches are located in the northwest corner of the property and are approximately 450 feet west of the Spring River (Appendix A21).~~ A total of eight angle borings, four bedrock corings and one shallow five foot boring were completed at the Trench Area.

The angle borings were completed using a Mobile Drilling Company Model B-53 drill rig. A ten inch inner diameter tube was welded to the base of the auger guide to assist in keeping the augers at the desired 45 degree angle. Each angle boring was completed in the following manner:

- 6 inch I.D. hollow stem augers advanced to the first sample interval
- 6 inch O.D. solid stem augers set inside the hollow stem augers to clean out the plug in the bottom of the auger

- 4 Inch I.D. casing is set in the hollow stem auger
- 3 inch solid stem auger is set through the casing and advanced 2 feet (sample interval)
- The 3 inch solid stem auger is removed without rotation to retrieve the sample
- The 4 inch I.D. casing is removed and decontaminated along with the 3 inch solid stem augers
- The hollow stem augers are advanced 2 feet
- The plug is then cleaned out and the sample collected in the same manner as above

(Angle boring samples 5.2002 - 5.2007 were collected using a three inch diameter split spoon. The split spoon samplers were used in an attempt to increase the sample recovery).

Terracon Consultants collected the samples and gave them to the Durbin Contracting crew for processing. The samples were thoroughly mixed and placed in clean quart glass jars. A composite sample was collected from each boring and sent to the Syntex laboratory in Palo Alto, California for analysis. EPA split samples were collected from each of the angle borings. These samples are:

<u>SYNTEX SAMPLE NUMBER</u>	<u>EPA SAMPLE NUMBER</u>	<u>DESCRIPTION</u>
312.2000	AK651034	Trench Area composite of 12.2001, 12.2002, 12.2003
312.1000	AK651035	Trench Area composite of 12.1001, 12.1002, 12.1003
309.1000	AK651036	Trench Area composite of 9.1001, 9.1002, 9.1003
309.2000	AK651037	Trench Area composite of 9.2001, 9.2002, 9.2003
305.1000	AK651038	Trench Area composite of 5.1001, 5.1002, 5.1003, 5.1004, 5.1005
319.1000	AK651039	Trench Area composite of 19.1001, 19.1002, 19.1003
319.2000	AK651040	Trench Area composite of 19.2001, 19.2002, 19.2003

<u>SYNTEX SAMPLE NUMBER</u>	<u>EPA SAMPLE NUMBER</u>	<u>DESCRIPTION</u>
305.2000	AK651041	Trench Area composite of 5.2001, 5.2002, 5.2003, 5.2004, 5.2005, 5.2006, 5.2007, 5.2008
321.1000	AK651043	Trench Area shallow boring composite of 21.0001, 21.10002
321.2000	AK651044	Trench Area shallow boring composite of 21.0003, 21.0004 and 21.0005

A listing of all the samples collected from the angle borings and the associated sample numbers, analysis performed and descriptions is provided in Appendix A22.

The safety plan required level-C as a minimum level of protection. Due to the hot weather conditions during the time of sampling the drillers chose to work with a supplied air system. The supplied air system consisted of a Hydrovane 66 oilless air compressor with Del Monox carbon filters. The system was powered by a Caterpillar 400KW Three Phase Generator.

The Durbin Contracting crew completed all the decontamination of the drill equipment. A high pressure sprayer was used to clean the soil from the augers and then the equipment was rinsed using isopropyl alcohol.

Numerous problems were encountered during the drilling of the angle borings. A summary of the problems encountered is listed below:

- 6/10/85: The first attempt to drill angle boring 12.2000 failed when the augers could not be maintained at a 45 degree angle. A 10 inch I.D. tube was welded onto the auger guide to help maintain the augers at the required 45 degree angle.
- 6/12/85: The A W Rods were modified so the 3 inch O.D. flight augers could be connected to the rods. Additional 3 inch O.D. flight augers were brought in and used in place of the A W Rods.
- 6/18/85: The first attempt of angle boring 9.1000 was abandoned when an area of resistance was encountered that could not be penetrated.

- 6/19/85: The temperature during working hours was in the mid 90's. Two of the workers began to exhibit signs of heat stress and were taken out of the sampling area to cool off.
- 6/21/85: A hydraulic oil hose broke on the rig and caused a delay while a new hose was purchased and installed on the drill rig.
- 6/26/85: The extension bar between the auger and the drill rig broke. A 6-inch O.D. flight auger was used in its place until a new extension bar was received.
- 6/28/85: Sample number 5.1004 had limited sample recovery. No discrete sample was collected.
- 7/01/85: A steep drop is located near angle borings 19.1000 and 19.2000. The Durbin crew used a bulldozer to build up the area so the drill rig could be set up. Railroad ties were used to help support the front jack of the drill rig. A supplied air system was brought in to help the samplers deal with the heat.
- 7/09/85: The 45 degree angle could not be maintained in angle boring 19.2000. The drill rig was offset 5 feet and the boring attempted again. The second attempt at angle boring 19.2000 was successful.
- 7/10/85: The hex connector on the cap used to advance the hollow stem augers broke. A new cap was ordered and the broken cap repaired by welding the hex back in place.
- 7/11/85: Sample 19.2002 had a limited recovery preventing the collection of a discrete sample.
- 7/12/85: Sample 19.2003 had a limited recovery preventing the collection of a discrete sample.
- 7/15/85: The throttle cable on the drill rig had to be repaired.
- 7/16/85: The hex connector on the new cap used to advance the hollow stem augers broke. The weld on one of the hollow stem augers broke allowing the connecting bolts to come out. Two five foot sections of the hollow stem augers were lost down the boring when the bolt came out.
- 7/19/85: The Durbin crew had dug a slit trench down 4 feet to locate the top of the augers. An attempt was made to pull the augers from the ground using a chain and a bulldozer. When this failed the drill rig was used to rotate the augers out of the ground.
- 7/24/85: The supplied air compressor broke and had to be repaired.
- 7/26/85: A split spoon used to collect sample 5.2007 was lost down

the boring. The hollow stem augers were advanced beyond the spoon to the next sample interval and then the augers removed from the ground. Sample 5.2008 was collected from the plug of soil in the bottom of the augers. The split spoon was recovered with sample 5.2007.

The sample numbering system for the angle borings provides the following information:

5.1001 305.1000

- 5. - indicates location in trench area relative to old vertical borings completed in the trenches
 - .1 - indicates the southern angle boring of the two completed for that area
 - .2 - indicates the northern angle boring of the two completed for that area
 - .1001 - indicates the first sample interval
- 305.1000 - composite sample for the southern angle boring

Four bedrock corings were completed around the fenced Trench Area. A diagram of the coring locations is provided in Appendix A23. The coring was completed in the following manner:

- Three inch I.D. hollow stem augers were advanced to the top of the bedrock.
- The bedrock coring barrel was lowered through the hollow stem augers.
- A five foot core of the bedrock was collected using drilling fluids.

The drillers encountered bedrock at the following depths:

- bedrock coring #1: 47.66 feet
- bedrock coring #2: 46.50 feet
- bedrock coring #3: 56.30 feet
- bedrock coring #4: 42.90 feet

The drillers completed the first boring in a modified level-C protection. The drillers were dressed in the following protective clothing:

- tyvek disposable coveralls
- cotton glove liners
- nitrile gloves
- steel toe and shank neoprene boots
- hardhat with face shield
- dust mask
- cotton underclothes and socks
- cotton coveralls

The level of protection was upgraded at the request of Nancy Blackman, E&E on-site observer. The protection was upgraded to level C protection. The drillers were dressed in the following protective clothing.

- PVC chemical coveralls
- supplied breathing system
- cotton glove liners
- neoprene steel toe and shank boots
- nitrile gloves
- cotton underclothes and socks
- cotton coveralls

The level of protection was upgraded to protect against any contaminants that might be migrating along the soil-bedrock interface.

The shallow five foot boring was completed in an area suspected of having surface contamination. Discrete samples were collected at every one foot interval. Composite samples were taken from the upper two feet and a second composite was collected from the bottom three feet of the sample interval. The following EPA split samples were collected:

<u>SYNTEX SAMPLE NUMBER</u>	<u>DEPTH (INCHES)</u>	<u>EPA SAMPLE NUMBER</u>	<u>SAMPLE DESCRIPTION</u>
321.1000	0-24	AK651043	composite of 21.001, 21.002
321.2000	24-60	AK651044	composite of 21.003, 21.004, 21.005

Appendix A24 contains photographic documentation of the sampling conducted at the Trench area.

2.9 INSTALLATION OF THE GROUNDWATER MONITORING WELLS

The installation of the monitoring wells was conducted from August 7 to August 22, 1985. ~~Ten shallow monitoring wells~~ were installed to determine if contaminants are migrating through the alluvial material. A map identifying the locations of the monitoring wells and diagrams of the well installation is provided in Appendix A25.

The wells were installed using the Mobile Drilling Company model B-53 drill rig. The wells were installed in the following manner.

- A cap was placed in the bottom of the lead auger to prevent soil from entering the center of the auger while it was being advanced.
- The 3 inch I.D. hollow stem augers were advanced to a depth of 15 feet.
- The stainless steel well pipe was set in place.
- The hollow stem augers were removed from the boring allowing the natural cave-in to cover a portion of 5 foot well screen.
- Washed pea gravel was tamped in place to a depth of 2 feet above the top of the well screen.
- Bentonite pellets were added to provide a 2 or 3 foot seal.
- 1 foot of dry cement was then added to the boring.
- A cement grout slurry was then added up to the surface.
- The security cover was set in place and locked with a Master-lock padlock.

Difficulties were encountered during the installation of monitoring wells #1, 5 and 7.

Monitoring Well #1:

The drillers attempted to install the well by using solid stem augers. The augers were advanced to a depth 17 feet and then removed from the boring. The boring caved-in to a depth of 9.25 feet preventing the setting of the well pipe. Hollow stem augers were then used to redrill the boring. Silt advanced into the augers to a depth of 11 feet. The augers were removed from the ground and the well pipe set in place. Washed pea gravel was added, along with the bentonite pellets and dry cement without any problems.